

*United States Marine Corps
School of Advanced Warfighting
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5068*

FUTURE WAR PAPER

**TITLE: PYRO-TERRORISM—THE THREAT OF ARSON
INDUCED FOREST FIRES AS A FUTURE TERRORIST WEAPON
OF MASS DESTRUCTION**

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF OPERATIONAL STUDIES

**AUTHOR:
ROBERT ARTHUR BAIRD
MAJOR
UNITED STATES MARINE CORPS**

AY 2004-2005

**Mentor: Colonel Christopher Owens USMC
Director, School of Advanced Warfighting**

Approved: _____

Date: _____

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2005		2. REPORT TYPE		3. DATES COVERED 00-00-2005 to 00-00-2005	
4. TITLE AND SUBTITLE Pyro-Terrorism-The Threat of Arson Induced Forest Fires as a Future Terrorist Weapon of Mass Destruction				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) United States Marine Corps,School of Advanced Warfighting, Marine Corps University,2076 South Street, Marine Corps Combat Development Command,Quantico,VA,22134-5068				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 22	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

Executive Summary

Title: PYRO-TERRORISM—The Future Terrorists Threat to America with Arson-induced Forest Fires.

Author: Major Robert A. Baird USMC

Thesis: The United States is at grave risk of a future pyro-terrorist attack—when terrorists unleash the latent energy in the nation's forests to achieve the effect of a weapon of mass destruction—we must define the threat, understand America's vulnerabilities, and take action to mitigate this danger to our Homeland.

Discussion: While America orients on the readily apparent scenarios of smuggled nuclear weapons and radiological bombs, Al Queda and other terrorist organizations, are adapting to avoid our security and screening systems. Instead of using expensive, complex, and readily detectable nuclear or radiological bombs, a future terrorist could easily ignite several massive wildfires to severely damage our regional economies, impact our military forces, and terrorize the American population. This phenomenon is defined as pyro-terrorism; the use of arson attacks to terrorize the civilian population and coerce the government to advance political or social objectives. Arson, which destroys property with fire for profit or revenge, is the tactic. It is the political and psychological effect that differentiates pyro-terrorism from arson. This paper will describe pyro-terrorism, discuss how existing terror tactics and future intent define the threat, assess the vulnerabilities in America today, and identify various actions the US government must take to mitigate those vulnerabilities. The potential destructive energy already exists in our nation's forests. An opportunistic terrorist can unleash multiple fires creating a conflagration potentially equal to a multi-megaton nuclear weapon. If terrorist organizations use arson as a tactic, and publicly assume responsibility for these massive fires, the perception of Homeland Security among the people would drastically erode. The fire's devastation could overwhelm suppression resources, weaken regional economies, destroy critical infrastructure, effect readiness in military forces, and put political pressure on national leadership for policy change.

Conclusion(s) or Recommendation(s): The clear threat of pyro-terrorism means that America's forests are the next 'ground zero'. Fortunately, prompt implementation of awareness, prevention, and protection measures will mitigate pyro-terrorism's effects. To increase awareness of the pyro-terrorism threat in government leadership, fire suppression agencies, and the public, the Forest Service's Forest Fire Prevention Campaign should be updated to reflect the post 9-11 threats to our nation's forests, similar to what occurred during World War II. Preparation of interagency incident management plans would increase awareness of each agency's evolving role in the event of pyroterrorism attack. Finally, the billet of Force Protection Officer, modeled after the Anti-terrorism/Force Protection Officer in the Department of Defense, should be added to the Incident Command and General Staff structure to specifically address pyro-terrorism vulnerabilities prior to, and during, suppression operations.

Introduction

We are today a Nation at risk to a new and changing threat. The terrorist threat to America takes many forms, has many places to hide, and is often invisible. — President G. W. Bush, Jul 16, 2002¹

While America orients on the readily apparent scenarios of smuggled nuclear weapons and radiological bombs, Al Queda is adapting to avoid our security and screening systems and is seeking new operational tactics and destructive technologies. Instead of using expensive, complex, and readily detectable nuclear or radiological bombs, future terrorist can easily ignite several massive wildfires to severely damage regional economies, impact our military forces, and terrorize the American population. Studies of wildfire conflagrations have shown that they can rival the destructive force of nuclear weapons, giving the terrorist a weapon with the same effect with a great deal less effort and risk.²

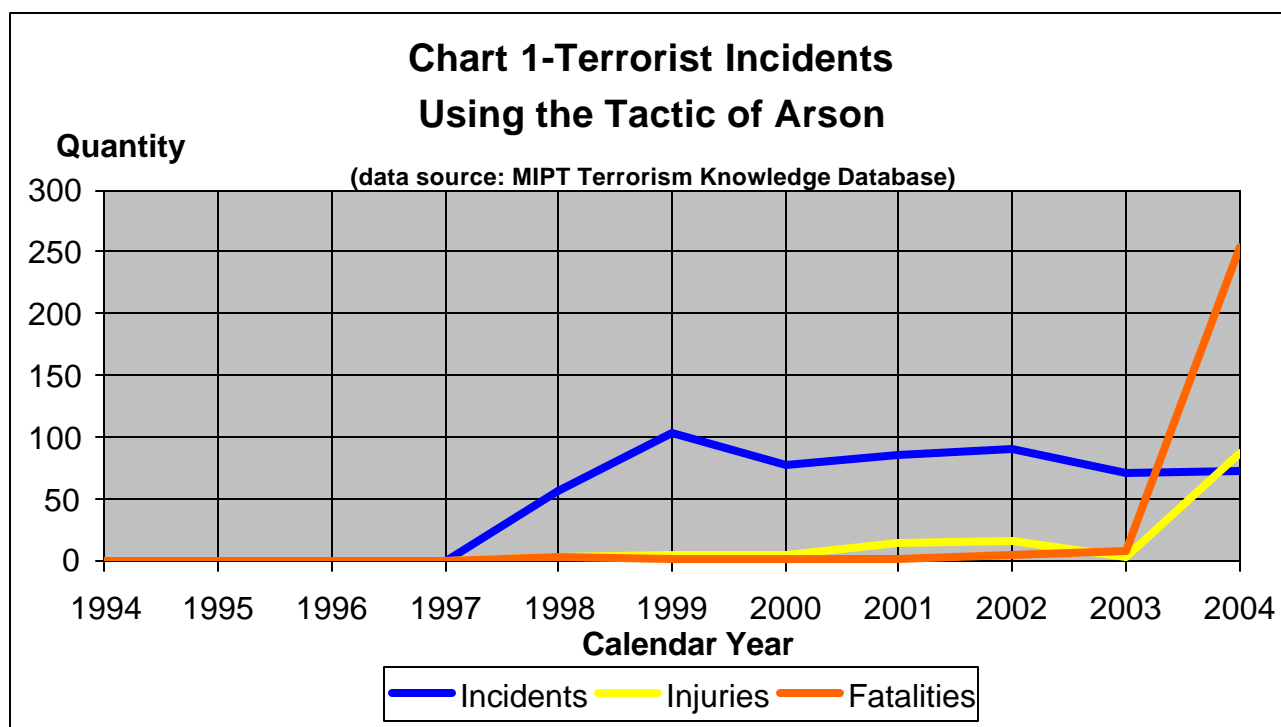
Pyro-terrorism is the use of incendiary attacks to intimidate or coerce a government, the civilian population, or any segment thereof, to advance political or social objectives.³ Pyro-terrorism possesses the four generally accepted elements of terrorism: targeting of non-combatants, political motivation, violence with a psychological impact, and organized perpetrators.⁴ In contrast, the criminal act of arson-destroying property with fire for profit or revenge is only a tactic. It is the political and psychological effect that differentiates pyro-terrorism from arson.

This paper will define the pyro-terrorist threat, assess the vulnerabilities in America today, and identify various actions the US government must take to mitigate those vulnerabilities. The potential destructive energy already exists in our nation's forests, waiting for an opportunistic terrorist to unleash a wildfire and create a conflagration potentially equal to a multi-megaton nuclear weapon. If terrorist organizations use pyro-terrorism—publicly

assuming responsibility for massive arson induced firestorms— the devastation would overwhelm suppression resources, weaken regional economies, destroy critical infrastructure, effect readiness in military forces, erode the perception of Homeland Security among the population and potentially exert political pressure on national leadership for policy change. The key for US decision makers is to anticipate how future terrorists will adapt, and implement countermeasures before terrorists can launch another devastating domestic attack. It is not too late to envision this future threat and take measures to mitigate the potential destruction of the next September 11th attack.

Identifying the Threat: Indicators of Pyro-terrorism Against America

Historical analysis of incidents coupled with open source information reveals that terrorist groups in general, are adapting toward simple destructive methods like arson with increasingly high levels of fatalities. From 1968 to 2005, fifty-six terrorist groups worldwide used arson as a tactic.⁵ Chart 1 displays the number of terrorist incidents where arson was used



as a tactic, plotted by calendar year from 1994 to 2004. Over the decade, not only has the total number of incidents where arson was the tactic increased, more significantly injuries and fatalities have spiked upward from calendar year 2003 to 2004. Not only has the number of injuries increased from 3 to 37, more significantly, the number of fatalities has leaped from 7 to 254. While the incident locations do not appear to significantly weigh a single geographic region and the spectrum of political causes varies dramatically from the Earth Liberation Front to radical Islamic fundamentalism; the thirty-six fold increase in fatalities in one year may indicate that terrorists have both the capability and intent to use arson as a terror tactic in the future.

The inherent difficulty in manufacture and transportation of nuclear and radiological weapons may also cause terrorists to adapt their tactics, favoring more simple and reliable methods. Indicators of Al Queda's desire to innovate toward massive arson attacks as an alternate to nuclear or radiological bombs are captured in open source court documents. Prosecutors in the case of Guantanamo Bay detainee Jose Padilla allege that he "repeatedly met with senior leaders of the al Queda terrorist network, including Khalid Shaikh Mohammed, the mastermind of the Sept. 11, 2001, attacks."⁶ During a personal meeting in July or August of 2001, "[Khalid Shaikh] Mohammed believed that plans to use nuclear or radioactive material were impractical ... al Queda leaders steered volunteers toward blowing up apartment buildings (using natural gas) ... [in] as many as 20 simultaneous explosions, probably in New York."⁷ This account, validated by Padilla's overseas travels, indicates that senior al Queda leaders clearly aimed to circumvent law enforcement screening methods and create havoc and mass destruction using improvised incendiary weapons in America's cities.⁸

While future pyro-terrorists may target our nation's cities, the greater vulnerability for mass destruction exists within our forests. Federal Bureau of Investigation (FBI) warnings

indicate that Al Queda is seeking to use arson as a tactic against America's forests. On June 25, 2004 the FBI alerted the National Interagency Fire Center (NIFC), the federal organization that coordinates all wildland firefighting efforts in the country, to a possible al Queda plot that, "involved three or four people setting wildfires using timed devices in Colorado, Montana, Utah, and Wyoming that would detonate in forests and grasslands after the operatives had left the country."⁹ Other US intelligence agency sources specified that the attacks were to cause, "significant damage to the U.S. economy" and influence citizens to, "put pressure on the U.S. government to change its policies."¹⁰

In addition to a transnational pyro-terrorist threat, various domestic groups employ similar tactics; the most frequent are the environmental terrorists or eco-terrorists.¹¹ Eco-terrorists commonly use arson attacks for political and social purposes. Earth Liberation Front's (ELF) website lists endorsed direct action targets as, "forest destruction, new developments, SUVs, gmo (sic)[genetically modified] crops and research, police and military, globalization, and other reasons."¹² The eco-terrorist's goal is the destruction or degradation of mankind to save the natural environment.¹³ It may only be a matter of time before an unconstrained eco-terrorist uses fire to create mass destruction in the nation's forests and the dwellings surrounding them.

Pyro-terrorism Threat Indicators Abroad

The threat not only exists against America—France and Israel have suffered from pyro-terrorism attacks as well. In 2003, the French Riviera town of Roquebrune-sur-Argens was the victim of a devastating fire attack resulting from, "Molotov cocktails and gasoline bombs that killed four and destroyed 50 homes ... [T]he mayor called the fires 'a new form of terrorism.'"¹⁴

In April of 2004, Israel experienced a, “new wave of ‘arson terrorism’ by Palestinians” that was so severe it was called an “Arson Intifada.”¹⁵ A 1996 study, focused on the causes of forest fires in Israel, reveals a history of politically motivated arson attacks that,

directly related to the Palestinian uprising (Intifada). Palestinians used fire as a means of the resistance movement in the 1920s, 1930s, and 1940s, but in the 1980s it was adopted as a highly visible action against Israeli occupation on the West Bank. Arson was found easy to execute: all one had to do was cross the old border, which was unguarded and open to all, start a fire in one of many forests which straddle the mountainous areas near the border, and then disappear.¹⁶

The problem in Israel is so acute that pyro-terrorism is responsible for a third of all Israeli forest fires.¹⁷ The Chief Ranger of the Galilee Region in Israel provided his unique perspective when he said that, “It’s extremely hard to find the arsonists, just like it is hard to close off the Green [L]ine to terrorists. The forests here are on the front line.”¹⁸ America’s size makes the issue of manning frontlines and securing vulnerable forests much more acute. On 9-11, New York City’s fire and police professionals found themselves reacting to an unforeseen attack; the wildland fireline¹⁹ may become the future front line in America’s Homeland Defense.

The World Trade Center Attacks and Future Pyro-terrorism

An analysis of the 9-11 attacks on the World Trade Center Twin Towers provides three key concepts to model future terrorist behavior as it relates to pyro-terrorism. Future pyro-terrorist attacks will tend toward unconstrained violence for maximum psychological impact, challenge the conventional definitions of ‘attack’ and ‘weapon’, and cause destruction by releasing a catalyst in the target to release stored energy in a destructive way.

The attack on the Twin Towers indicates that terrorists will tend to unconstrained violence to inflict the maximum amount of damage and casualties in the future. Only horrendous destruction can ensure terrorists receive the print and media attention they crave to spread their effect and influence the populace. The era of unconstrained violence in terrorism may be upon

us. James K. Campbell, in his book Weapons of Mass Destruction Terrorism asserts that, “the change in the characterization of terrorism may be indicative of a new era, one in which the traditional, constrained terrorist of the twentieth century is supplanted by the ultra-violent post modern terrorist of the twenty first century.”²⁰ Future terrorists will not adhere to any limits or “unofficial rules” observed during the past, “classical terrorism period.”²¹

The second future terrorism concept, indicated in the 9-11 attack, is that our previous perception of weapons was outdated. On that fateful day, everyday items (commercial jet airplanes) were distorted to create improvised weapons, in effect human-guided cruise missiles. In their book Unconstrained Warfare: China’s Master Plan to Destroy America the two authors, both officers from the People’s Liberation Army, assert that, “The new concept of weapons will cause ordinary people and military men alike to be greatly astonished at the fact that commonplace things that are close to them can also become weapons with which to engage in war.”²² The improvisation of weapons by terrorists will continue and in the future our definition of what constitutes a ‘weapon’ or an ‘attack’ may alter drastically. Redefining how military and civilian leadership defines ‘weapons’ and especially weapons of mass destruction will enable us to look beyond the scope of probable terrorist attacks and enable us to understand the most dangerous possibilities, to include pyro-terrorism.

The final concept, derived from the World Trade Center attack, is that instead of conventionally transporting explosives to the target, future terrorists will use a catalyst (in this case the chemical action of fire) to cause the target to release its own destructive energy—in effect causing the target to destroy itself. Scientific investigation and analysis has revealed the heat from the fires softened the integral steel support columns resulting in total collapse of the Twin Towers.²³ In essence, the fuel was a catalyst that attacked the steel support structure at its

critical vulnerability—the characteristic of steel to lose tensile strength when—the effect was that the World Trade Center Towers literally collapsed under their own weight. While the airplane impacts certainly damaged the Twin Towers, the decisive element of the destructive force was the thermal energy in the improvised incendiary.²⁴ Future terrorists, seeking to create the effect of a WMD, need only look to find a concept that worked on 9-11—the use of incendiaries as a catalyst to release the catastrophic destructive energy latent in the nation’s forests.

Although one could argue the expectation of the collapse of the Twin Towers was never envisioned by Usama bin Laden or other Al Qaeda leaders, this opinion would seriously underestimate an adversary. What is more likely, is that Al Qaeda learned from the first failed attempt to destroy the Twin Towers in 1993 with conventional explosives and innovated to use the building’s latent energy as a destructive force.²⁵ Bin Laden’s own words, translated from a tape released during that period, gives a chilling look into the enemy leader’s intent,

We calculated that the floors that would be hit would be three or four floors. I was the most optimistic of them all (inaudible) due to my experience in this field, I was thinking that the fire from the gas in the plane would melt the iron structure of the building and collapse the area where the plane hit and all the floors above it only. This is all that I hoped for.²⁶

Bin Laden’s “personal experience in the field” is a civil engineering degree from King Abdul-Aziz University granted in 1979.²⁷ This education certainly would have given him a unique perspective on the vulnerabilities of building construction and design. Having examined the significant upward trend in the frequency and effect of arson in terrorist attacks and in light of the concepts for future terrorism revealed by examining the World Trade Center attacks, it is relevant to examining America’s past, so that our potential future vulnerabilities will become more defined.

America's Vulnerabilities to Wildfire as a Terror Weapon during Past Wars

World War II and Vietnam provide historical examples to examine the vulnerabilities and effects of arson attacks against the United States during war. Based on historical analysis, America's vulnerabilities to pyroterrorism are: that a psychological effect will be disproportional to the destructive effect, that military reactions will create a positive effect in the population out of proportion to military effectiveness, that clandestine ingress and egress are readily feasible, that a minimum initiating catalyst will release the destructive effect of a nuclear weapon, and that massed forces focusing on fire suppression are vulnerable to direct attack.

After General Jimmy Doolittle's B-25 bombers succeeded with reprisal attacks against the Japanese home islands, the Japanese sought to innovate and bring the destructive effect of the war to the American mainland. Faced with this challenge in the spring of 1942, the Japanese developed two innovations using submarines and fire-balloons.²⁸

Japanese submarines shelled the California coast with incendiary munitions and launched transport floatplanes to drop incendiary bombs. One submarine commander, Nobikuyu Nambu, was interviewed after the war and recalled that he selected an oil field as his target location because he knew that it would cause a big explosion.²⁹ These submarine attacks had a powerful psychological effect on the American population, out of proportion to the munitions expended or damage caused. The psychological shockwave that swept through the media and the public in 1942 was rooted in the reality that an enemy of the United States had struck the American mainland for the first time since the war of 1812.³⁰ America experienced a similar shock after September 11th, 2001.

Similar to the submarine attacks, Japanese fire-balloons also achieved a huge psychological effect with minor destructive effort. More importantly, the fire-balloons caused national military leaders to employ precious military resources in order to mitigate this threat to the Homeland. Japan launched more than 9,000 fire-balloons from their home islands and at least 300 reached the US mainland.³¹ Designed to maintain a constant altitude within the jet stream, the fire-balloons were primarily unguided incendiary bombs with a timer mechanism. While the number of fires achieved was minimal due to less than ideal winter weather conditions in the US, the terror effect was so significant the Office of Censorship “sent a message to the newspapers and radio stations to ask them to make no mention of balloons and balloon-bomb incidents, lest the enemy get the idea that they had a good thing going.”³² When a single fire-balloon mechanism exploded killing a mother and five children, the media block was lifted to avoid more civilian casualties. The psychological effect raised public concern causing an enormous US civil and military response. P-38 Lightning fighters, training for service on the front lines, were diverted to patrol the coast and shoot down the balloons. Less than twenty fire-balloons were ever destroyed by this defensive measure, indicating that the air patrols probably had more of a positive psychological effect on the population than a destructive effect on the balloons.³³ If the fire-balloon attack had occurred during the summer fire season in California, and especially during the Santa Ana winds, the result would have been a significantly greater level of physical destruction and a greater negative psychological effect on the US population.

The use of military forces to create the perception of security will also create a force deployment conflict for scarce resources. In 1942, the Japanese had asymmetrically placed US military leadership in a dilemma,

By the end of February [1942] almost 250,000 troops had arrived to defend vital installations on the west coast, a task for which Army ground combat units were neither

intended nor trained. General Marshall's chief concern was that the public fear of imminent invasion would freeze this force in a perimeter defense of the coast at a time when these regulars were desperately needed to train the citizen army being mobilized.³⁴

This psychological effect, coupled with the public's perceived vulnerability against pyroterrorism, may in the future drive politicians to deploy military forces to bolster a terrorized population, despite the needs of combat forces. A future Commander in Chief may face a similar dilemma, to either employ units at home to defend against wildfire or deploy them abroad to conduct combat operations against our enemies. While this seems to be a future hypothetical situation, Governor Brian Schweitzer of Montana told the Pentagon on March 6, 2005 to return some of the 1,500 Montana National Guard personnel and UH-60 helicopters from Iraq before this year's wildfire season. The Governor's justification was that, "I know it's going to be a bad fire year" and "the state is like a powder keg".³⁵ Governor Schweitzer's over risk to property and lives of his constituents exceeded his concern for conflict in Iraq. And this request, to return forces to the Homeland, is only in response to a typical fire season. Future external enemies or internal pacifist movements, wanting to cause the Pentagon and Commander in Chief to withdrawal forces from the far regions of the globe, may exploit this vulnerability and initiate clandestine operations to deliberately ignite the country's forests for political ends.

The use of fire as a weapon by US Forces during the Vietnam War illustrates two future US vulnerabilities: first, that preplanned attacks unleashing the destructive energy latent in forests can create the effect of a nuclear weapon and second, that as personnel mass to effectively fight fires they become vulnerable targets.

In 1968, US Forces in Vietnam used a minimal amount of incendiary ordnance to maintain the U Minh fire for over a month, destroying "more than 1000 square miles... equivalent to that of a 20 megaton nuclear device."³⁶ As the Vietcong forces were forced to

change from their guerilla tactics and mass together for fire suppression operations—such as building firebreaks, moving weapons, and saving supply caches—the US forces exploited their new weakness and decimated the Vietcong units involved. Enemy activity in the U Mihn area ceased.³⁷

Similar to the dilemma of the Vietcong personnel fighting the fires, US first responders are susceptible to attack while focusing on fire suppression. Today, both the Internet and mass media provide detailed information on the current and projected fire danger ratings in an effort to reduce negligent fires. The result is an abundance of information enabling a terrorist cell to pre-plan a pyro-terror attack against the nation's forests by targeting the first responders while law enforcement personnel are busy with evacuation duties. Additionally, terrorists may block evacuation routes out of fire-threatened areas to create havoc, mayhem, and mass casualties—material ripe for broadcast through the national media and effectively increasing the psychological effect of pyro-terrorism in the American population.

A Model for Pyro-terrorism: The San Diego Fire Storms of 2003

The San Diego Fire Storms of 2003 provide a contemporary example of how certain regions of the country are vulnerable to wildfire terrorism and provide a model to examine the affect of a future pyro-terrorist attack on the local population, regionally based US military forces, and the communities that support them. Three arson induced wildfires called the Cedar, Paradise, and Otay fires, converged in the San Diego area in late October of 2003 overwhelming area fire resources. The fires, fueled by the dry vegetation and fed by the Santa Ana winds, raged across southern California and killed 16 people, burned an estimated 750,000 acres, destroyed an estimated 2,500 homes and threatened 70,000 other structures (see Annex A).³⁸ California Governor Gray Davis observed the fire and likened it to a war zone.³⁹ The response

effected all types of military units: active duty units responded to initiate suppression on bases; the National Guard forces were activated, and fixed wing and rotary wing aircraft (from the active duty Marine Corps and National Guard forces) assisted under the ad hoc command Joint Task Force Fire Fighting.⁴⁰ Fires breached the perimeters of both Camp Pendleton (burning over 8,500 acres) and Miramar Naval Air Station (burning over 19,000 acres).⁴¹ Smoke and flames hampered both ground units and flight operations. The aircraft carrier USS STENNIS returned to its homeport of San Diego to allow the crew shore leave to assist their families. As a result of the fire, over 2,220 military families were displaced into shelters.⁴²

This focus on the military toll is not meant to minimize the civilian deaths; it is intended to highlight pyro-terrorism's potential impact on the capability and morale of conventional armed forces. Future adversaries may use pyro-terrorism to bypass the military strength of US armed forces and attack the bases and communities that support them back home. If pyro-terrorists had started the San Diego fires, they would have simply released a video claiming responsibility, with a credible threat for more destruction, and thereby affected the morale of deployed service members and their families.

Methods to Mitigate the Threat of Pyro-terrorism

Fortunately, prompt implementation of awareness, prevention, and protection measures will mitigate many of pyro-terrorism's adverse effects. Specific methods needed to attack the pyro-terrorism threat head-on are to create interagency incident management plans, update the Forest Service's Forest Fire Prevention Campaign to reflect the post 9-11 threats to our nation's forests, and create the billet of Force Protection Officer (modeled after the Anti-Terrorism/Force Protection Officer in DOD) to the Incident Command and General Staff structure to specifically address these vulnerabilities during suppression operations.

The creation of all-discipline incident management plans is vital to create unity of command. Pyro-terrorism attacks across many agency functions, which may differ depending on region, likely targets, and proximity to critical infrastructure. By integrating separate federal response plans into single all-discipline interagency incident management plans, problems with jurisdictions, funding, tasking authority, and operational control must be confronted in advance with all agencies. In view of the unique set of vulnerabilities and interagency players at each forest, Regional Foresters and Fire Management Officers should be trained in the development of contingency plans with pyro-terrorism as a key aspect. These incident management plans should contain branch plans, in the event terrorist action is discovered. A priority of effort should be given to those areas that threaten critical infrastructure. The National Guard Bureau and Department of Defense, represented by Joint Forces Command and Northern Command, has a role as well since deployment of active duty or National Guard Forces or capabilities is likely. Once complete, interagency incident management plans should be reviewed, exercised, and evaluated periodically at the local level to ensure relevance, cooperation and unity of effort.

Awareness of the threat is an essential element in the formulation of informed decisions and prudent policy. Pyro-terrorism awareness must first take firm hold in the Forest Service, Federal Emergency Management Agency and Department of Homeland Security. While federal, state and local policy makers have to wrestle with debate over the best method of reducing the accumulation of material, or biomass, from the forests they need to fully grasp the Homeland Security risks involved. The timber and biomass in America's forests and wild lands provides an easy target. Filled with latent energy after years of fire suppression, many of America's forests essentially transform into tinderboxes during fire season.⁴³ The deliberate setting of multiple

wildfires could easily overwhelm local and regional fire suppression efforts, and any delay in detection would allow a clandestine perpetrator to escape undetected.

Fortunately, the US Forest Service has a long history of success in making the public aware of the threat of forest fires. During World War II,

There was concern that further [Japanese] attacks could bring disastrous loss of life and destruction of property. There was also a fear that enemy incendiary shells exploding in the timber stands of the Pacific Coast could easily set off numerous raging forest fires...Protection of these forests became a matter of national importance, and a new idea was born.⁴⁴

The Forest Service, aided by the Cooperative Wartime Advertising Council, launched the Cooperative Forest Fire Prevention Campaign. Posters, stamps and bookmarks were developed and distributed using memorable phrases to promote fire prevention messages. The initial posters, picturing Japanese and German enemy caricatures warned, “Careless Matches Aide the Axis” and “Our Carelessness, their Secret Weapon”(see Annex B).⁴⁵ This campaign changed with the culture and is now the longest running public service campaign in history, providing the creative impetus for the American icon of Smokey the Bear.⁴⁶ It is time to update Smokey for the post 9-11 world and the threat of pyro-terrorism. The messages don’t have to be overtly terrorist-oriented to heighten public fear. Slogans like, “Secure Forests for a Secure Homeland” or modifying an existing message, “Only you can defend the forests against arson” are initial recommendations. They can easily be expanded by advertising professionals for maximum effect on the Internet, television, and in print. The result of these information operations will be an aware population looking to identify and report suspicious activity in the forests to a toll-free number. Law enforcement, assisted by an aware citizenry, would be in a better position to catch the perpetrators prior to an attack or call for fire suppression personnel immediately negating the fire’s effect, suppressing the fire while still manageable, and preventing conflagrations.

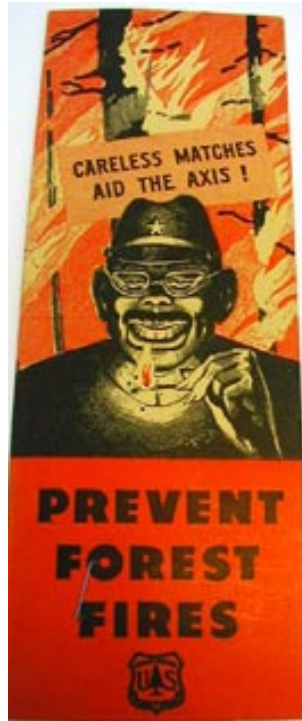
The third strategic goal centers on the concept of protection. Pyro-terrorism protection should be twofold: first, quickly identify and report an emerging pyro-terrorist attack and second, ensure that the firefighting force is protected from any external threat while fighting the fire. The best solution is to add the billet of a Force Protection Officer (FPO) to the General Staff structure in the Incident Command System, adapting relevant duties from the Department of Defense's Anti-Terrorism/Force Protection (ATFP) Officer. Based on the pyro-terrorism threat and scenario-based wargaming, the FPO would monitor law enforcement and intelligence networks and make the incident commander aware of all external threats to the firefighting force. On a large fire, the FPO would liaison with investigators at the point of origin and identify if the fire may have a suspicious source of ignition. Then looking across the region to multiple fires as they relate to critical infrastructure or population centers, the FPO would provide the incident commander and the Department of Homeland Defense indications that a terrorist attack is occurring and what critical infrastructure is vulnerable. Early detection of pyro-terrorism will mitigate the destructive effect and allow law enforcement to be involved early. With the threat of pyro-terrorism, the fire lines will be converted to the front lines, making a FPO an essential function. By implementing these countermeasures before future terrorists launch another devastating attack the potential destruction and political coercion will be minimized.

Just as past terrorists utilized improvised incendiaries to weaken the steel structure of the World Trade Center causing it to collapse under its own weight, future attacks may bypass the strength of our Homeland Security defenses and attack our national vulnerability to catastrophic wildfire. Fire has been a weapon of war since ancient times. Future terrorists will undoubtedly use it again as an asymmetric terror weapon—it is only a matter of time.

(Source: San Diego Tribune. <http://www.signonsandiego.com/news/weblogs/fires/index.html#>)



Annex B: Examples of Forest Fire Campaign Posters from 1940 –1943
(source http://www.smokeybear.com/vault/museum_main.asp)



End Notes

-
- ¹ President G.W. Bush, Letter from the President, The National Strategy for Homeland Security, Office of Homeland Security, White House. Jul 16, 2002.
- ² Craig Chandler and Jay Bently. Forest Fire as a Military Weapon. Washington, D.C. June 1970. On May 10, 1983, the SECRET publication was downgraded to UNCLASSIFIED and approved for unlimited distribution and public release. Held at the Grey Research Center, Marine Corps University, Quantico, VA.
- ³ The term pyro-terrorism is derived using the prefix 'pyro', from the Greek word for 'fire', and the root word 'terrorism'. Although there are many working definitions of terrorism, an authoritative definition is problematic due to the subjective moral evaluation of right and wrong. The FBI Counterterrorism Division, in the Annual Report Terrorism 2000-2001 acknowledges that, "There is no single universally accepted definition of terrorism." In order to provide the reader a clear working meaning of pyro-terrorism, this definition was adapted from the U.S. Federal Law against terrorism—U.S. Title 28. Code of Federal Regulations. Section 0.85. Judicial Administration. Washington, D.C., July 2001 available at http://www.fbi.gov/publications/terror/terror2000_2001.htm
- ⁴ Troy S. Thomas, MAJ USAF, Intelligence Preparation of the Battlespace for Counterterrorism. Center for Strategic Intelligence Research, Joint Military Intelligence College, Washington, D.C. November 2004.
- ⁵ Incident data last updated January 18, 2005. Data for 1968—1997 covers only international incidents. Data for 1998-present covers both domestic and international. Available at <http://www.tkb.org/Grouptacticmodule.jsp>
- ⁶ Dan Eggen, "U.S. Details Case Against Terror Suspect", Washington Post. The Washington Post Company 2004 page A-1 Wed Jun 2, 2004 No 180. A-1.
- ⁷ Eggen, A-8.
- ⁸ Eggen, A-1 Quote from Deputy Attorney General Comey in an effort to explain why Padilla is being held as an enemy combatant.
- ⁹ Associated Press, 2003
- ¹⁰ Counterterrorism and Homeland Security Reports (CHSR), Newsletter of the International Association for Counterterrorism and Security Professionals. Vol. 11, No. 1, 2003, 3.
- ¹¹ It should be differentiated that ecoterrorism refers to the motivation for committing the act (saving the environment). Pyro-terrorism is a tactic of using fire as a weapon of mass destruction, which may be used by a variety of perpetrators, to include pyromaniacs.
- ¹² Anonymous, www.earthliberationfront.com, Jan 13, 2004. Note: The ELF website is restricted from Navy/Marine Corps Intranet system. Seven pyroterror attacks were committed by ecoterrorists in Long Island, New York during December 2000. Homes under construction in the vicinity of a wilderness area were set on fire using, "plastic water bottles filled with gasoline, topped with gasoline soaked sponges and incense sticks as burn down fuses."¹² To create fear and intimidation the perpetrators used, "spray painted messages, including "BURN THE RICH," and "IF YOU BUILT IT WE WILL BURN IT."¹² This model for pyroterror attacks on the wild land urban interface has been seen in Maryland and other regions of the country. This incident also highlights that an act of pyro-terrorism does not take a huge budget or state of the art technology. In fact, in response to media reports of the high dud rate (five of seven failed to ignite) of the incendiary devices (made from gas cans with home-made fuses), ELF posted to their website several alternate ignition systems to increase their effect.
- ¹³ Dr. Thomas R O'Connor. Ecoterrorism Lecture notes 16 for Terrorism Class in Criminal Justice Course 429, North Carolina Wesleyan College. Dr. O'Connor, a Criminal Justice Professor at Wesleyan University, explains that not only is ELF America's biggest domestic terrorist threat but that, "it is important to understand that extreme ecoterrorists do NOT (original emphasis) really want to preserve the environment or protect endangered species (like environmentalists); they are better characterized as wanting to destroy the world in order to save it. Available online at <<http://faculty.ncwc.edu/toconnor/429/429lect16.htm>>.
- ¹⁴ CHSR, 3.
- ¹⁵ Yaakov Katz. Fire Chief Warns of 'Arson Intifada'. Jerusalem Post April 21, 2004.
- ¹⁶ Nurit Kliot. Israel: Forests and Forest Fires in Israel (IFFN No. 15 September 1996. University of Haifa, Department of Geography. Available at http://www.fire.uni-freiberg.de/iffn/country/il/il_3.htm
- ¹⁷ CHSR, 3.

-
- ¹⁸ CHSR, 3.
- ¹⁹ A fireline is defined as that portion of the fire upon which resources are deployed and actively engaged in suppression action. In a general sense, the working area around a fire according to www.for.gov.bc.ca/pab/publctns/glossary/F.htm
- ²⁰ Campbell, James K. *Weapons of Mass Destruction Terrorism*. Interact Press. Seminole, FL. 1997.ii.
- ²¹ William H. Thorton, MAJ, MSC. *Modern Terrorism: The Potential for Increasing Lethality*. A Center for Low Intensity Conflict Paper, Langley Air Force Base, VA. 1987, 8.
- ²² See Liang, Qiao, and Xiangsui. *Unrestricted Warfare: China's Master Pan to Destroy America*. Pan American Publishing Company, Panama City Panama. 2002. p. 17.
- ²³ See the National Institute of Standards and Technology report at http://www.nist.gov/public_affairs/releases/wtc_latest_findings_1004.htm
- ²⁴ For more detailed information see the National Institute of Standards and Technology report at http://www.nist.gov/public_affairs/releases/wtc_latest_findings_1004.htm
- ²⁵ For more detailed information see the <http://www.globalsecurity.org/eye/wtc.htm>
- ²⁶ See Excerpts from bin Laden Tape at CNN.com Dec 13, 2001 at <http://archives.cnn.com/2001/US/12/13/ret.bin.laden.quotes/index.html>.
- ²⁷ See New Yorker Magazine Article and answers.com <http://www.answers.com/topic/osama-bin-laden>.
- ²⁸ Goebel, Greg, The Fire Balloons. V 1.0.2. 01 Jun 04 available at <http://www.vectorsite.net/avfusen.html>.
- ²⁹ Goleta Montessori School website on Goleta History. Japanese Submarines Attack. Available at <http://www.mcspb.org/goletahistory/japanesesubattack.htm>
- ³⁰ United States Army, Defense of the Americas, US Army Campaigns of World War II, 19.
- ³¹ Goebel, Greg, The Fire Balloons. V 1.0.2. 01 Jun 04
- ³² Goebel, Greg, The Fire Balloons. V 1.0.2. 01 Jun 04
- ³³ Goebel, Greg, The Fire Balloons. V 1.0.2. 01 Jun 04
- ³⁴ United States Army, Defense of the Americas, US Army Campaigns of World War II, 15. Available at <http://www.ibiblio.org/hyperwar/USA/USA-C-Americas/>
- ³⁵ Associated Press, "Montana Girds for Wildfire Blowup, Seeks Troops Return", Washington Post, Sunday Edition, March 6, 2005. p. A-8.
- ³⁶ Chandler and Bentley, 4.
- ³⁷ The battle damage assessment lists "hundreds of tons of ammunition, rice, and petroleum products...100-200 Vietcong were killed or incapacitated while either fighting the fire or by rocket ships and air strikes in the area." Chandler and Bentley, A-7-A-8. Figures were based on the Military Assistance Command Vietnam J-2 (Intelligence) battle damage assessment. Chandler and Bentley, 1-7.
- ³⁸ For more information see < <http://www.signonsandiego.com/news/fires/index.html> >
- ³⁹ For more information see < <http://www.manilatimes.net/national/2003/oct/29/world/20031029wor5.html> >
- ⁴⁰ Jim Garamone. Military Personnel to Enter California Fire Lines Next Week. Armed Forces Press Service. Washington D.C. Oct. 30 2003. 3.
- ⁴¹ JO3 Jessica O'Haver. Navy Personnel flee Fire Storm 2003. Naval Media Center Fleet Support Detachment. Waterline-Naval District of Washington. October 31, 2003.
- ⁴² JO3 Jessica O'Haver. Navy Personnel flee Fire Storm 2003.
- ⁴³ Robert Nelson. The Forest Service's Tinderbox. CATO Institute. February 2, 2001. Available at: <http://www.cato.org/dailys/02-02-01.html>
- ⁴⁴ Smokey's Vault- Campaign History – Forest Fire Prevention in Wartime available at <http://www.smokeybear.com>
- ⁴⁵ Forest Fire Prevention in Wartime available at <http://www.smokeybear.com>
- ⁴⁶ Forest Fire Prevention in Wartime available at <http://www.smokeybear.com>